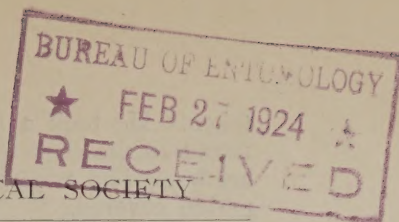


PROCEEDINGS
OF THE
PACIFIC COAST ENTOMOLOGICAL SOCIETY



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EIGHTY-SIXTH MEETING

The eighty-sixth meeting of the Society was held on Saturday evening, September 2, 1922, in the Board Room of the Mechanics' Institute, 57 Post street, San Francisco, California.

President Van Dyke in the chair.

Minutes of the two preceding meetings were read and approved.

Nine members answered to the roll call: President Van Dyke, E. P. Van Duzee, Grant Wallace, C. D. Duncan, Professor G. F. Ferris, J. C. Huguenin, Charles L. Fox, J. E. Cottle, and Dr. F. E. Blaisdell.

The following ten guests were in attendance: Mrs. E. P. Van Duzee, Mrs. J. E. Cottle, Mrs. F. E. Blaisdell, Mrs. Grant Wallace, H. H. Keifer, Mrs. G. F. Ferris, Victor Duran, J. S. Yip, F. H. Wymore, and S. E. Flanders.

The treasurer's report was then read.

Under new business the secretary proposed that the next meeting of the Society be held at Stanford University. Professor Ferris stated that they would be very glad to have the meeting held there. The suggestion was made in the form of a motion, and being seconded was put to vote. The vote was unanimously in favor of the next meeting being held at Stanford University.

There being no further business the subjects of the evening were next taken up, namely: Reports by the different members regarding their summer work.

Mr. Wallace being called upon said that, in company with Mrs. Wallace, he had collected for a week in the vicinity of Lake Tahoe, at Fallen Leaf Lake, Glen Alpine Springs and Echo Lake on the summit of the Sierras, in the middle of August. Found things a little dry at this season. The best Coleoptera collected were among the Buprestids, as there were many windfalls, as well as trees felled for fire-wood. Best subjects were Jeffery and sugar-pines and spruce. The finest species taken were *Buprestis adjecta* Lec., and *B. connexa* Horn.; also took *B. maculiventris* var. *rusticorum* Kby., besides species of *Chrysobothris*, *Melanophila*, and *Acmaeodera*, *Chrysobothris* being especially numerous. These were as active as tiger-beetles and as difficult to capture.

Next best came the Longicorns and Scarabaeidae, various species of *Leptura*, *Saperda*, *Dichelonycha*, and *Serica* being

taken. He took a good series of *Glyptoscelis*, a Chrysomelid found on the sugar-pines and a good collection of miscellaneous beetles. The trip was very successful, considering the short period covered.

Mr. Cottle followed with an account of his outing at Anderson's Springs, Lake County. He said that that region had a particular interest to him, for it was there that he first met Beverly Letcher. During the present visit he took six species of *Catocala*, namely: *C. verrilliana* Grote, *C. pura* Hulst., *C. aholibah* Strecker, *C. faustina* Strecker, *C. Zoe* Behr and *C. cleopatra* Hy. Edwards. He also commented upon the abundance of the *Catocalae* one day and their entire absence the next.

Dr. Van Dyke inquired if he noticed any change in humidity which might account for or have something to do with such variation in numbers.

Dr. Van Dyke remarked that the Society was fortunate in having Mr. Huguenin present at the meeting, as he had been very seriously ill.

Mr. Van Duzee was next called upon and reported his visit to Salt Lake City, in attendance on the meeting of the Pacific Division of the A. A. A. S., and of the results of a month's collecting, during which time he and Mrs. Van Duzee captured over 6000 specimens of insects.

Mr. Duncan of Stanford University reported fifty days' vacation, with a class studying the botany of the Northwest.

Dr. Blaisdell stated briefly the results of his vacation at Mount Hermon, in the Santa Cruz Mountains, Mr. Van Duzee adding that Dr. Blaisdell had collected and turned into the California Academy of Sciences 600 specimens of spiders taken in the vicinity of Mount Hermon.

Dr. Van Dyke then gave a short report of his summer's outing. He spent three weeks in Eastern Oregon and two weeks in Western Oregon and Northwestern California. The start was made from Ashland from whence he rode to Klamath Falls, where a few days were utilized in collecting and outfitting, then on east, with a stop of two days in the Fremont National Forest, to Lakeview, then on into the Warner Mountains and later over a high table-land to the Donner and Blitzen Valley, where several days were spent on the property of the 167,000 acre P. ranch. From here a trip of several days was made into the heart of the Steins Mountains, where a height of about 9000 feet was reached, then a return was made to the lowlands and a route followed which led north and northeast through Harney and Malheur Counties, through Crane and Vail and on into Idaho, thence back over the Snake River into Oregon, through Huntington and into Baker. From here a trip of about a week was made northeasterly to the Wallawalla Mountains; then

a return made to Baker and the trip continued on to La Grande with a stop of one day in the Blue Mountains near there, then over the Blue Mountains to Pendleton, to the Columbia River and along that westerly to Portland, where he parted with his traveling companion, Mr. Chamberlain, Forest Entomologist of the Oregon Agricultural College.

In Portland he remained a few days, then took the train South to Medford, where he was joined by his wife. Then a trip was made by auto to Crater Lake, where several days were spent, then the journey was resumed to Klamath Falls, where a couple of more days were spent, then another broken journey made back over the Cascades to Ashland, to Medford and on to Grants Pass, where another day was spent. From here a journey was made to the Oregon caves in Jefferson County, then back to the highway at Waldo and on to Crescent City, Calif. Here a stop of two days was made, then the trip continued on to Eureka for another stop, and after this by automobile south over the Redwood Highway to Berkeley.

The most important observations made were that the entire area of Eastern Oregon was of volcanic origin, a high tableland with here and there a depression in the form of a broad shallow valley or sink occupied by a shallow lake or wet meadow, with a few portions elevated much above the surrounding country, forming the various isolated ranges, such as the Warner Mountains, the Steins Mountains, the Wallawalla Mountains, Blue Mountains, and so forth. The forested areas were noted to be along the foothills flanking the Cascades, in the region around Klamath Falls. All of the rest of the area was covered with the black sage, *Artemisia tridentata*, and other desert shrubs, and in most places was very dry and uninviting. Even the high Steins Mountains only possessed a sparse growth of juniper, *Juniperus scopulorum* Sang., and of aspen, *Populus tremuloides*. In the forested areas of the Klamath Falls area, the insect fauna was found to be much like that of our Northern Sierras, while that of the mountains in the northeast was somewhat similar, though with quite a resemblance to that of the Northern Cascades, as well as that of the Rocky Mountains. The fauna of the barren uplands was quite uniform, the same species of Orthoptera being found around Baker as around Klamath Falls and the lower Steins Mountains. This applied also to other groups as the Coleoptera, Lepidoptera, Hymenoptera, and Diptera. The most evident groups of insects observed were: Among the Diptera, the families Bombyllidae, Asilidae, Tabanidae, Stratiomyidae and Tachinidae, and last but not least, as far as numbers are concerned, the Culicidae, especially in the sinks and in the high mountains; among the Hymenoptera, the Apidae and the various aculeates; among the Lepidoptera, a few species of our com-

moner butterflies, and some moths; and among the Coleoptera, such families as the Tenebrionidae, and Meloidae, with a moderate number of Carabidae about the meadows and in the high mountains, the usual forest groups in the forested areas, and a sprinkling of other families. The grasshoppers were very numerous and varied throughout the area traversed, and the meadow species particularly numerous and destructive in the more fertile lowlands.

Some of the most important Coleoptera taken were: *Cicindela longilabris* var. *monticola*, in the Steins Mountains along the margins of the melting snow; *Carabus taedatus* var. in the Warner Mountains and again in the high Steins Mountains; *Philophuga amoena* Lec., throughout the barren areas on the sagebrush at nightfall, but always rare; *Dicerca prolongata* var., and *Poecilontha cyanipes* in numbers on the aspens in the Steins Mountains; *Chrysobothris nixa*, *viridicyanea* and *cuprascens* upon the juniper, the last named species found for the first time west of the Rocky Mountains, *Buprestis connexa*, *Dicerca tenebrosa* var., *Melanophila californica* and *intrusa*, *Chrysobothris dolata* and numerous more common species of *Buprestidae*; on the yellow pine, *Dicerca pectorosa* on the wild plum, *Chrysobothris carinipennis* on the firs; a specimen of *Pogonocherus penicillatus* Lec. from the Blue Mountains, the first Oregon record, a couple of specimens of a species of *Xylotrechus* as yet undetermined from aspen, *Mecas inornata* from *Artemesia*; several species of *Diploptaxis* and *Phyllophaga* (Lachnosterna) besides other Scarabaeidae of less note. Among the Rhyncophora perhaps the best species secured was the rare *Acmaegenius hylobinus* Lec., taken at nightfall from the *Artemesia*. Among the Tenebrionidae and Meloidae, several desirable species were secured, as well as numerous commoner forms, but they are as yet not checked up.

At Crater Lake, numerous specimens of *Desmocerus piperi* were secured on the red-berried Elder. Some of these were as typical as those from the Blue Mountains of Washington, others intermediate between that and *cribripennis*, showing that it is but a variety of the latter. Here also a single specimen of *Pachyta armata* was found, thus extending the range south from Mount Rainier, and a couple of specimens of *Anthrophilar tenebrosus*, taken by Mrs. Van Dyke on an old alpine hemlock log, extending the range of this rare beetle north from the Sierras into Oregon. Here also were secured numerous specimens of that peculiar pine moth, *Coloradia pandura*. These large moths were abundant about the hotel, attracted by the lights, as well as found hanging to the pine trees (*Pinus albicaulis*), along the crater rim. They were also secured in numbers near Klamath Falls. This species was reported by Chamberlain as being destructive to yellow pines in this latter region,

the year before. Professor Aldrich had succeeded in rearing the species to maturity from the larvae, and proved that this insect was the adult of the caterpillar, which has been known for so long a time as the food of the Piute Indians. Near the mouth to the Oregon caves, numerous specimens of *Cerambycidae*, chiefly various species of *Leptura* were secured, apparently attracted by the odor of the calcium carbide used so extensively there for the lights. On the trip south along the coast a few insects were captured, some of value like *Leptura behrensi* from an old Sitka spruce log at Crescent City, but the traveling was now so fast that but little time could be given to field-work.

The outing, as a whole, was a good one and yielded valuable results, chiefly from the standpoint of new information, for but few species of Coleoptera were captured which were new to Dr. Van Dyke's collection. All of the insects besides the Coleoptera were given to the California Academy of Sciences, the Coleoptera being retained by the collector.

Mr. De Garnett reported by letter his captures on the Field Day, held May 14, 1922, on San Antonio Creek near Sunol, Alameda County, Calif., stating one of his most interesting catches was *Poecilobrium chalybaeum* Lec. This specimen showed distinct cyaneous reflections and in other ways leaned toward *P. rugosipenne* Linell.

The exhibits of the evening, while not numerous, were very interesting and instructive. This was particularly the case with a cabinet box filled with series of species of *Melitaea* (Lepidoptera) and their variations exhibited by Mr. Cottle.

Mr. Wallace showed a box of Coleoptera collected at Fallen Leaf Lake, near Lake Tahoe, Calif., among which were the desirable *Buprestis connexa* and *adjecta*.

Mr. Fox passed around a box of Cicadas taken in Modoc County, Calif., and a species of *Larra* (Hymenoptera), as well as a species of grasshopper (Orthoptera).

After considerable discussion the meeting was ended.

F. E. BLAISDELL, Secretary.

EIGHTY-SEVENTH MEETING

The eighty-seventh meeting of the Society was held in the Entomological rooms of the Entomological Department of Stanford University, on the afternoon and evening of November 18, 1922.

The following seventeen members were present: Dr. E. C. Van Dyke, W. B. Herms, O. E. Essig, G. F. Ferris, Carl D. Duncan, J. C. Chamberlin, R. W. Doane, Mrs. E. C. Van Dyke, W. F. Breeze, F. W. Nunenmacher, Grant V. Wallace, J. O. Martin, Isabel McCracken, H. E. Burke, Charles L. Fox, E. P. Van Duzee, and F. E. Blaisdell, Sr.

Twenty guests were present as follows: S. E. Flanders, Brighton C. Cain, L. B. Soliman, Hartford H. Keifer, Nathan I. Fiat, Floyd H. Wymore, John F. Lamiman, Clifford L. Dodds, Cyril F. Roesling, Charles Woodworth, Josephine Nunenmacher, M. Kamal, Mrs. F. E. Blaisdell, L. R. Cady, Bertha Chapman-Cady, Mrs. Grant Wallace, Mrs. E. P. Van Duzee, J. B. Gladstone, L. T. White, and Margaret E. Bargar.

The afternoon was spent in viewing and studying the collections of the entomological department, discussions and social discourse, after which a dinner was served to those present. Following this all returned to the classrooms for the evening session.

At 7 o'clock the meeting was called to order by President Van Dyke. It was agreed that the usual formalities be dispensed with.

The president then spoke of the opportunities and advantages that came from holding meetings at the universities, following which the business of the evening was begun.

President Van Dyke reported the untimely death of Lawrence R. Reynolds, one of our most enthusiastic members, which occurred on November 12, 1922, in Melrose, Mass. It was moved and seconded that the president appoint a committee to draw up appropriate resolutions regarding Mr. Reynold's death, to be spread upon the minutes of the Society and a copy sent to his family.

The president appointed the following committee: F. E. Blaisdell, William F. Breeze, and Charles L. Fox.

Professor Doane was then called on and responded by telling of a series of experiments on feeding rats with infested cereal food products.

Mrs. Bertha Chapman-Cady told of her interest in getting young people interested in biology; also, of assisting Professor Doane in the experiments on feeding rats with infested cereal food products.

Professor Herms discussed the problem of feeding rats with infested food products; also, regarding the relation of mosquitoes to Dengue fever.

Professor Essig spoke on co-operation and socialization of work.

Mr. Van Duzee told of the finding of a dead specimen of *Trachykele opulenta* Fall in some infested wood which he had dug from near the heart of a log of a "Big Tree" (*Sequoia gigantea*) at Giant Forest, Tulare County, Calif. This tree had been struck by lightning when 421 years old, and the injured area had at that time become infested by the larvae of the *Trachykele*. This injured area had been covered by the growth of the tree, thus hermetically sealing the galleries and any insect remains in them. This was an exceptional opportunity of comparing an insect living at the present day with specimens known to be more than 1200 years old. A careful comparison made by Dr. E. C. Van Dyke and Mr. H. E. Burke revealed the fact that no appreciable change had taken place in the species during these 1200 years, a result that is not so surprising when we consider that this species belongs to an archaic type, perhaps the most primitive of all our buprestids. Such a comparison in a more plastic group might have shown a very different result. The California Academy of Sciences has a section of this Big Tree, showing the work of the *Trachykele* in place. They also have the remains of two of the adult beetles, one larva, and two hymenopterous parasites associated with these beetle remains.

Mr. H. E. Burke spoke on, "Why is an Entomologist?" Very often to the layman this is a leading question. To the writer the following explains, in some degree at least, why some are entomologists. To him the genus *Trachykele* just mentioned by Mr. Van Duzee has been of especial interest for the past twenty years. Its study has been a romance, or to be more exact, a detective romance, which has kept up a continuous interest, as clew after clew has opened up new fields of knowledge and paths to further unexplored fields.

Upon taking up the work in forest insect investigations under Dr. A. D. Hopkins in the winter of 1902, the problem of working out the life histories and biologies of the Buprestidae was assigned to the speaker. At that time the larvae of the American Buprestidae were practically unknown. As it is the larval stage that is usually found in the bark and wood, it was thought that the developing of this field would be of special importance to the science of forest entomology. Before going out into the actual field-work a visit was paid to the collection of the United States National Museum, and a study of the adult Buprestidae was made under the direction of Dr. E. A. Schwarz. The greatest impression received at that time was made when Dr. Schwarz pointed out the solitary specimen of *Trachykele blondeli* in the collection and said: "Do not bring in the common things. Get the rare ones. Get the rare ones."

As practically nothing was known of the distribution and hosts of the species, no systematic collecting could be done, but the vivid recollection of that single specimen was not forgotten. For two field seasons nothing happened, but in 1905 discoveries both known and unknown came with a rush. A beetle was collected from a fence in Hoquiam, Wash., on June 2. In July the supervisor of a Washington national forest reported that many of the green and apparently thrifty Western red cedar trees had their timber badly injured by some wood-boring larva. Millmen in Portland, Ore., reported heartwood of cedar badly injured and unfit for shingles. In October the men in a shingle-mill at Hoquiam struck because so much of the cedar was riddled with worm-holes that they could not make wages by working on piecework as they were doing. At Pialschie, Wash., cedar telephone-poles were found to be injured by the mines of some large flathead borer. The beetle taken from the fence and the larva taken from the cedar gave no indication of being closely related, but that was to come later.

Upon returning to Washington, D. C., for the winter and examining the Buprestidae collected during the summer by the various members of the field force, a single beetle of the then known other species of the genus was found. This specimen of *Trachykele lecontei* had been collected by Mr. W. F. Fiske at Ferguson, S. C., while it was flying about a pile of freshly sawn ash lumber. This gave a false clew as to the probable host of the genus.

In April, 1906, at Pialschie a number of cedar trees were found which showed the characteristic work of the flathead borer, which had been reported as injurious to the cedar timber at Portland and Hoquiam. Under a loose flake of bark at the edge of an old wound on one of these trees was found the elytra of a *Trachykele blondeli*. At last a clew to the beetle which produced the injurious borer was found, but this was only circumstantial evidence. On May 3 another elytron was found in a similar situation. The evidence was accumulating, but still there was no definite proof.

On June 7, in the Mariposa Grove of Big Trees, near Wawona, Calif., a young big tree about 25 feet high and 6 inches in diameter was found which showed the sapwood and heartwood badly riddled with the mines of a flathead borer. The tree was felled, and the work of cutting it up was started. Soon the characteristic *Trachykele* larva was found and then the beetles and the evidence appeared conclusive.

Upon returning to Washington for the winter, however, it was found that Mr. H. C. Fall had made a taxonomic study of the genus and had named two species, one of which, *opulenta*, proved to be the species taken from the big trees. A comparison of the larvae from the big tree and from the red

cedar showed that the two belong to distinct species of the same genus. Thus the evidence indicated that the cedar borer was the larva of *Trachykele blondeli*. In the meantime Ranger Kleine of the Sequoia National Forest had sent in some worm-eaten incense cedar, which indicated that this tree was also the host of a *Trachykele* as had been reported by Fall on the authority of Mr. Ralph Hopping.

On April 5, 1908, Dr. Hopkins collected from a bald cypress drift-log on the beach at Cape Henry, Va., larvae and two beetles of *Trachykele lecontei*. December 4 of the same year a section of worm-eaten bald cypress was received from La Fourche Parish, La. This also contained larvae and one beetle of *lecontei*.

We now had a genus with four species, the host, or part of the host at least, of three species being known. What was the host of the fourth? All of the hosts of the three species were cedar-like trees, Pacific red cedar (*Thuja plicata*), California big tree (*Sequoia washingtoniana*), incense cedar (*Libocedrus decurrens*), and bald cypress (*Taxodium distichum*). Was it not logical to suppose that the host of the fourth species, which resembled *lecontei* and which Fall named *nimbosa*, would not also prove to be some cedar-like tree?

The only cedar-like tree which the speaker could foresee as a probable host of *Trachykele nimbosa* was the Western juniper (*Juniperus occidentalis*). It occurred at the proper range and at the proper elevations. During the summer of 1913, the first opportunity to examine the juniper came. It was immediately taken advantage of, but without results. The trees were disgustingly healthy and without worm-holes of any kind. Hope still persisted, and in August, 1914, another opportunity came. The first tree examined showed larval mines, and a dead larva was found at the end of one. It was a *Trachykele* larva. The juniper did support a *Trachykele* and, of course, it must be a *nimbosa*. Nothing further was obtained that day, but on the next, in another tree in the center of a small branch a large fresh mine was found. Evidence of an inhabited pupal cell at last! The branch was very, very carefully split and a beetle uncovered. Alas! it was green; our old friend of the red cedar, *blondeli*.

In the meantime a good clue had been cast aside because the detective would not believe that *Trachykele* could live in any other than cedar-like trees. In 1911, Mr. F. C. Craighead had collected from an old blaze on the trunk of a white fir at Sparta, Ore., a larvae which had all of the appearances of a *Trachykele*. When the larva was examined, however, it was decided that either it was not a *Trachykele* or that the collector was mistaken in the host tree, so the importance of the find was not appreciated.

Upon the failure of the juniper as a host, it was natural to turn to other associated trees, and finally in July, 1915, near Vade, Calif., the writer collected specimens of *nimbosa* from wood of the red fir (*Abies magnifica*). In this connection it is interesting to note that taxonomic botanists consider the red fir one of the closest relatives of the cedar-like trees.

Continued observations by the speaker and his associates, F. B. Herbert and R. D. Hartman, disclosed that *nimbosa* also lives in the white fir (*Abies concolor*) and the mountain hemlock (*Tsuga mertensiana*) and that *blondeli* inhabits the Monterey cypress (*Cupressus macrocarpa*), Sargent cypress (*C. sargentii*) and the McNab cypress (*C. macnabiana*).

That the trail is a widening and never-ending one is well illustrated by the discovery of a fine new species by Mr. Hartman in the Sargent cypress at Mount St. Helena, in 1919. This is now known to science as *Trachykele hartmani* Burke.

If the preceding story is not a romance it is as interesting as one to those who love to delve into the mysteries of our world as illustrated by its most numerous inhabitants, the insects. It also illustrates the principal reason why the speaker is an entomologist.

Professor Ferris being called upon said: "As far as I can discover from a rather careful review of the American literature, and a random but fair sampling of the European literature, the immature stages of almost no species of the Hemipterous family Chermidae (Psyllidae) have been sufficiently well described to permit of the positive identification of the species. I have, therefore, become interested in the matter and have been gathering material, with a view to a general study of the immature stages in this group.

The material of the immature stages should be studied in the same manner as the scale insects are studied. Careful microscopic preparations should be made. In the majority of cases these should be stained. Specimens which are simply mounted directly into the balsam without clearing or staining are not adequate.

With the aid of good preparations it becomes evident that the identification of the species is not a difficult matter. A whole host of characters, practically all of which have never been described, begin to appear. Even with the small amount of material examined, it is evident that the immature stages will throw much light on the relationships of the genera, which thus far have been studied only from the adults. The correlation of the facts obtained by the study of the adults will afford a most interesting problem."

Professor McCracken followed with remarks on "Some Aspects of the Study of the Cynipidae:

"The family Cynipidae of the Hymenoptera is of interest to

the biologist from many aspects, and furnishes much material for study and investigation.

Of most striking interest is the peculiar relation of these insects to plants. Like many other insects, they are, in the larval state, plant feeders. But, unlike most other insects, the larva, hatching from the egg within the plant tissue, where the egg was placed days or perhaps weeks or months before, stimulates the plant tissue into producing, at that point, a continuously developing supply of food. The development of food ceases only when the larva ceases to need food and is ready to pupate. Not only is this continuous supply of food thus kept up, but a peculiar protective mass of plant tissue known as a gall, becomes organized about the feeding larva, completely enclosing and protecting it during the larval and pupal stages. Each gall is peculiar to the gall-species which stimulates it, rather than to the tree-species as such, for several kinds of galls may be found on one tree or even upon one leaf.

Having become fully fed, the larva follows one of three procedures: It may lie for weeks in the larval state before pupating and emerging as an adult; it may pupate and lie for weeks as a pupa; or it may pupate and emerge as an adult, and the adult may lie enclosed in its protecting chamber for weeks before it gnaws its way out.

The adult having gnawed its way out of the gall, if it be an agamic female, finds a favorable locality in a bud, leaf, stem, flower, or root, and oviposits at once, for its life is short. In the case of the sexual forms, mating apparently takes place at once; the history of these forms is almost unknown.

Some of the galls are very hard and woody, and one wonders if the adult has not some means of softening the hard tissue as she makes a way for herself out of the gall.

The structure of the ovipositor is very peculiar. It consists of very delicate, long, needle-like processes, longer than the abdomen when extruded, peculiarly inserted within the abdomen in such a way as to be all but completely hidden from view when not in use. The mechanism controlling this apparatus is very extraordinary.

The fact of alternate generations, male and female in the first or spring generation, and female only in the second or fall generation, has been demonstrated in the group. In many species, however, the sexual generation has not been discovered, while in others, particularly those on *Rosa* sp. and *Rubus*, alternation of generations is believed not to exist.

The plant-hosts of this group are exceedingly limited. The favorite genus seems to be *Quercus*. There are also many species on *Rosa*, a few on *Rubus*, and a few on certain herbaceous plants. Any part of the plant serves as a point of attack apparently, provided it is a source of growth of new tissue.

In addition to these and many other interesting features that might be mentioned, is the interest that attaches to the guests and parasites of these insects. The guests are near relatives, certain genera of the same family, in structure not unlike that of the true gall-makers, but with certain characteristic differences. These have, however, lost the art of finding a place for locating eggs in the main plant tissue and have adopted the young succulent gall, the growth of which was stimulated by its host.

The parasites are Hymenoptera, chalcids, braconids and ichneumonids, relatively abundant in the order named.

The discarded galls hanging on the trees or lying on the ground become the feeding ground of another large series of insects, moths, beetles and flies, and here also predaceous insects of several kinds find a rich pasturage, and certain solitary wasps and solitary bees, find favorable locality for nest-building.

Thus the 'Cynipidae' opens up to the student a field of interesting studies, and much opportunity for exploration and investigation."

Professor W. B. Herms called attention to the fact that California has been particularly fortunate in being largely free from the large number of insect-borne diseases which usually infest subtropical regions. While all three types of malaria occur in some parts of the State, there are now in operation a number of mosquito abatement districts which have resulted in holding in check, and in many instances, almost eliminating the diseases in some of our badly infested districts. On the whole, California has a remarkably low malaria rate and cannot by any means be classed as a malarious State. A case of yaws has recently appeared in California, according to the State Board of Health. This disease, while closely resembling syphilis, is entirely distinct and common in most tropical countries. While the causative organism (*Treponema pertenue*) is no doubt frequently transmitted by direct contact, it is commonly transmitted by the common housefly.

Another disease has recently made its appearance, namely, dengue fever, one case being reported during last month (October). Dengue is a mosquito-borne disease, largely prevalent in our Southern States. For example, during October about 4250 cases were reported for Texas alone, and nearly 3000 for both Louisiana and Georgia. The yellow fever mosquito (*Aedes aegypti*), which does not occur in California, is an important vector of dengue, and probably other species may act in that capacity. It will be interesting and important to observe whether other cases will make their appearance.

Dr. Van Dyke spoke on the bollweevil.

Mr. Nunenmacher exhibited and told about four very rare species of Coccinellidae, namely: *Psorolyma maxillosa* Sic.,

Endochilus plagatus Sic., *Endochilus rubicundus* Weise, and *Endochilus cavifrons* Weise. These being represented, as far as known, in only three collections in the world.

Mr. Duncan talked about certain genera of wasps.

Dr. Blaisdell stated that he had recently received an interesting new species of *Eleodes* from Utah, and that it is a member of the Quadricollis group, subgenus *Melaneleodes*. The elytral sculpturing is quite similar to that of *Eleodes tricolor* Say. It is the first known species of the Quadricollis group with costate elytra. The description will appear as soon as possible, with those of other new species of Tenebrionidae.

Mr. Martin told about collecting certain species of Coleoptera on the snow. One of the most interesting was the uncommon *Hydnobius matthewsi* Crotch.

Mr. Chamberlin spoke on the "Classification and Geographical Distribution of the Tachardiinae of the Coccidae" as follows: "The subfamily Tachardiinae, of the family Coccidae (Hemiptera), have been the basis of nine months' continuous research, during which time many important and interesting new facts regarding classification and geographical distribution of this subfamily, have been found out. In the first place, my investigation shows that the group—formerly considered under a single generic heading—must be divided into four very distinct genera. In turn, all of these genera but one are easily and naturally to be divided into two subgenera each. This is the first group of the Coccidae to be studied sufficiently well to enable any conclusions regarding the geographical distribution to be drawn. Therefore, it is of some interest to list and enumerate the facts disclosed. The genus *Tachardiella* is exclusively American, and ranges from Argentine to Southern United States. It is divided into two distinct subgenera, but not enough South American forms are known to enable the drawing of any conclusions concerning their distribution. However, both subgenera are represented in both North and South America. None of the other genera are found in America. The genus *Tachardia* is found in India, Philippine Islands, Formosa and Australia. One of its subgenera is represented by a single known species found in Ceylon. The genera *Tachardia* and *Tachardiella* are fairly close relatives and form a co-ordinate group with the genus *Austrotachardia*, which, so far as is at present known, is exclusively Australian. These three genera—*Tachardiella*, *Tachardia*, and *Austrotachardia*—then form a group of tribal rank, while the fourth genus, *Tachardina*, represents a co-ordinate tribe. It is rather heterogenous and will undoubtedly be later subdivided into several subgenera at best. It is very widely distributed, being found in British South Africa, Uganda, India, Ceylon, Burma, Malay Peninsula, Formosa, Philippine Islands, Java, and Australia.

The complete results of these investigations are being published in detail in England."

Mrs. Van Dyke said that she thought it time for the Society to consider starting a publication, and suggested that it be brought up for discussion.

After considerable social discourse the meeting adjourned.

F. E. BLAISDELL, Secretary.

EIGHTY-EIGHTH MEETING

The eighty-eighth meeting of the Society was held on the afternoon and evening of March 10, 1923, in the Entomological Department of the University of California.

In the absence of the president and vice-president, Professor W. B. Herms was elected president *pro tempore*. The meeting was called to order at 3 o'clock.

The following eighteen members were present: W. B. Herms, J. O. Martin, J. C. Chamberlin, E. P. Van Duzee, F. E. Blaisdell Sr., F. W. Nunenmacher, E. R. Leach, G. F. Ferris, William F. Breeze, H. E. Burke, O. E. Essig, Mrs. F. E. Blaisdell, Mrs. E. P. Van Duzee, Mrs. J. Francis Killeen, J. F. Killeen, Grant V. Wallace, R. D. Hartman, and W. Dwight Pierce.

The following twenty-five guests were in attendance: C. Gladstone, Harold Kirby Jr., Harry S. Smith, Henry H. Severin, Lawrence Bruner, N. Fiat, Stanley B. Freeborn, M. Monir Bahgat, E. R. de Ong, George H. Vansell, D. T. Burk, L. T. White, H. M. Jegyson, Clifford S. Dodds, Charles E. Woodworth, Josephine Nunenmacher, Mrs. Grant V. Wallace, John Lamiman, F. H. Wymore, Frederik J. Spruyt, A. Maglee Spruyt, C. Avery Ransome, M. Kainal, C. F. Roesling, and L. B. Soliman.

Under report of Committees, Dr. Blaisdell stated the committee on resolutions regarding the death of Lawrence R. Reynolds was ready to report:

RESOLUTIONS ON THE DEATH OF LAWRENCE R. REYNOLDS

"Whereas, Death has taken from us one of our most valued members, Lawrence R. Reynolds; and

"Whereas, Mr. Reynolds was held by us in the highest esteem for his love of Nature and books, as well as being a lovable companion; and

"Whereas, His enthusiasm has been a help to our Society, and an aid to his colleagues with his advice and material, we shall mourn his loss; therefore, be it

"Resolved, That we publish a short sketch of his life in the Proceedings of the Society; and be it further

"Resolved, That we convey to his family our sympathy for its loss, and our tribute to his generous nature and excellency in whatever he attempted to do.

Committee: F. E. BLAISDELL,
WM. F. BREEZE,
CHAS. L. FOX."

Under communications, the secretary stated that he had a letter from Mr. Frank R. Cole, in which he reported the results

of collecting at Sunol on San Antonio Creek, May 14, 1922, that day having been the annual Field Day of the Society. He reports as follows: "I did not send my list of Diptera taken on the trip to Sunol earlier, because it was so small and the species mostly common. Some of the Muscidae and Syrphidae, as well as some other flies, I did not attempt to take, not thinking of a list of species at the time. My list is as follows:

Odontomyia pilosa Day.—A large series, not uncommon along the open stream-bed, but hard to catch.

Myopa rubida Big.—

Tipula spp.—Two undetermined species quite common.

Villa eumenes O. S.—Only one seen.

Dolichopus canaliculatus Thoms.—

Lasiopogon arenicola O. S.—Several specimens seen along the sandy stream-bed.

Sphaerophoria micrura O. S.—One specimen.

I took several Lepidoptera, some Coleoptera, and an interesting Cicada. I collected a specimen of *Bittacus apterus* and a specimen of what I take to be *Brachyleptura sanguinea* Lec. Several Culicids were noted, but none collected."

The president *pro tempore* then delivered a short address of welcome before taking up the program of the afternoon.

Mr. Kirby was first called upon, and he told of the work being done on termites.

Mr. Dodds followed with a talk on Embids. Professor Bruner related facts regarding collecting Embids in Mexico and Central America. He considers that they belong near the termites; some shed their wings as do the termites. Mr. Chamberlin gave his experience with Embids.

Mr. Wymore discussed the garden centipede (*Scutigera californica*). He stated that they were injurious to asparagus. Living specimens were exhibited.

Mr. Roesling gave an interesting talk on Ecology.

Mr. D. T. Burk considered the use of water-glass as something new as a medium for mounting different objects; they must be mounted from water only.

Professor Ferris reported progress of work on the scale insects from Texas.

Mr. H. E. Burke discussed the work and tropisms of the telephone-cable beetle, a problem of much interest, in view of the injury done to telephone-cables by the attacks of this beetle.

Mr. Lamiman exhibited and talked about Para-dichlor-benzene as a parasiticide. Mr. de Ong followed with the consideration of nicotine as a respiratory poison.

Mr. Kamal considered the Coccidae; how they suck up the plant juices; the effect on plant tissue, with the query, do they

secrete a substance into the plant. He decided that they did and that the result is toxic.

Mr. Bahgat exhibited a collection of Egyptian insects. He talked on insect control in Egypt, and of the invasion and dispersion of injurious insects.

Mr. Soliman discussed Egyptian fruits. He stated that the cotton crop was one of the most important in Egypt, and that he intended to take up the study of cotton pests.

Professor Herms gave a talk on mosquitoes and malaria, explaining how the infection is conveyed by mosquitoes, which serve as intermediate hosts. The discourse was illustrated by moving pictures.

The meeting then adjourned, and after considerable social discussion the members and guests dispersed to congregate later at the Carlton Hotel in Berkeley for dinner. At the close of the meal, Professor Herms called upon the different members for impromptu talks on their own particular line of study or work.

Mr. Nunenmacher stated that the entomological museum in Berlin, Germany, was in great need of assistance, and asked that a contribution be given, which was done by the members.

Adjournment.

F. E. BLAISDELL, Secretary.

EIGHTY-NINTH MEETING

The regular annual Field Day of the Society was held at Diablo, on the grounds of the Mount Diablo Club, Contra Costa County, Calif., on May 13, 1923.

To enjoy the advantages of the Diablo Club grounds was made possible by the courtesy of Mr. Frank A. Leach, a member of the club and who devoted the day to entertaining the visiting members of the Society.

The following members and guests attended the outing: Members—Mr. E. P. Van Duzee, Mrs. E. P. Van Duzee, Grant Wallace, F. E. Blaisdell Sr., Carl Duncan, J. C. Chamberlin, J. E. Cottle, Mrs. F. E. Blaisdell, Charles L. Fox, J. F. Killeen, Mrs. J. F. Killeen, F. W. Nunenmacher, Frederik J. Spruyt. Guests—Miss Helen Sanford, Mrs. Grant Wallace, Mrs. F. J. Spruyt, B. C. Cain, Miss May Dove, Miss Marie Olsen, Mr. and Mrs. Barry Weaver, Mrs. Arthur Lee Shaw, and Mr. Frank A. Leach.

The weather was ideal, and the members either passed the day socially in camp under the large oaks, or by collecting.

In response to the sentiment of the members of the Society, the secretary conveyed to Mr. Leach their appreciation of the opportunity of visiting the grounds of the Mount Diablo Club and for the attention shown them. Mr. Leach in return stated that he wished to convey to the Society the hope that he entertained that they would repeat the visit again and again. That none enjoyed the day more than he did.

Mr. E. P. Van Duzee presented a paper for publication in the Proceedings of the Society, titled "A New Ceratocombid from Mexico," which was accepted and which follows:

F. E. BLAISDELL, Secretary.

A NEW CERATOCOMBID FROM MEXICO

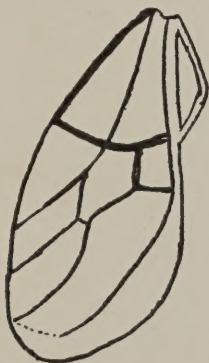
BY E. P. VAN DUZEE

In a considerable collection of insects taken by Mr. C. T. Dodds at Los Mochis, Sinaloa, Mexico, and by him kindly presented to the California Academy of Sciences, is a series of an interesting ceratocombid, belonging to the family Schizopteridae, a description of which follows. These specimens were in a box of material taken in a trap-lantern. The new species is closely related to the Brazilian *Schizoptera lunigera* Reuter, but differs in venation and other characters.

Schizoptera (*Corixidea*) *doddsi* Van Duzee, new species.

Closely related to *lunigera*, but with a different venation and with the eyes overlapping the anterior third of the pronotal margins; dorsum with a white area covering the disk of the clavus and corium; length, 1.5 mm.

Head with eyes a little narrower than pronotum, vertical, viewed from above, but little surpassing the eyes, from before arcuately short-triangular. Eyes slightly larger than figured by Reuter for his *lunigera*. Pronotum convex, strongly declinate; sides arcuate, humeri subacute. Elytra shaped as in *lunigera*, the costa arcuate but not reflexed; veins prominently elevated, those of the clavus close to the margins; on the corium the radial follows the claval suture; the cubital is arcuate to apex of corium, and near the middle sends a branch straight to the costa and another interiorly to the claval suture near its apex;



Venation of *Schizoptera* (*Corixidea*) *doddsi*.

from the middle of the latter a short vein runs backward and is bent at a right angle to connect with the apex of the claval suture, thus forming a quadrangular cell; membrane with three veins, the first beginning on the radial a little behind the transverse vein; the second, from the outer angle of the quadrangular cell, is bent inward almost to the first, where they are

connected by a very short vein forming a rhomboidal cell; the third, from the apex of the claval suture terminates abruptly before the margin, but connects with the apex of the second vein by a very faint line. Segments I and II of antennae subequal.

Color, black, opaque; head pale-pubescent; antennae and legs flavo-testaceous; elytra with a large common white spot covering apical two-thirds of clavus and inner field of corium, exteriorly following the cubital vein to cross-vein, thence oblique to apex of claval suture, the included veins yellowish on this white area; membrane dusky at base, the veins fuscous and heavy.

Described from seventeen individuals. In all generic characters this agrees with *lunigera* Reuter, the type of his subgenus *Corixidea*, but the peculiarities of venation will at once distinguish it.

Type, male, No. 1358, Museum California Academy of Sciences, taken July 20, 1922, by Mr. C. T. Dodds, at Los Mochis, Sinaloa, Mexico. I take pleasure in dedicating this interesting Hemipteron to its discoverer.

Issued January 31, 1924.

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